NASA STTR 2007 Phase I Solicitation

T2.01   Aerospace Vehicles Flight Dynamic Modeling and Simulation

Lead Center: AFRC

This subtopic solicits proposals for innovative, linear or non-linear, aerospace vehicles dynamic systems modeling and simulation techniques. In particular:

Research and development in simulation algorithms for revolutionary aerospace flight projects involving computational fluid dynamics (CFD), structures, heat transfer, and propulsion disciplines: Emphasis is placed on the development and application of state-of-the-art, novel, and computationally efficient solution schemes that enable effective simulation of complex modern flight vehicles, like the Space Shuttle, the Constellation (Aries and Orion), light-weight highly flexible structures, as well as more routine problems encountered in recurring atmospheric flight testing on a daily basis. Furthermore, the effective use of high-performance computing equipment and computer graphics development is also considered an important part of this topic.

Aeroelasticity and aeroservoelasticity, linear and non-linear: Vehicle design and stability analysis are an important aspect of this topic. Primary concern is with the development and application of novel, multi-disciplinary, simulation software using finite element and other associated techniques.